

nently marked in an area clearly visible after the article is loaded with cargo, with the following information:

(1) Name and address of the manufacturer.

(2) The weight of the article to the nearest pound.

(3) The serial number or date of manufacture or both.

(4) The identification of the article in the code system set out in paragraph 1.2.1 of NAS 3610, Revision 1, approved April 30, 1970.

(5) Any limitations or restrictions.

(6) If the article is not omnidirectional, the words "FORWARD", "AFT", and "SIDE" must be conspicuously and appropriately placed.

[(7) The burning rate determined for the article under paragraph 3.7 of NAS 3610, Revision 6, dated April 30, 1977.]

(8) The applicable TSO number.

(c) *Data requirements.* In addition to the data specified in § 37.5, the manufacturer must furnish to the Chief, Engineering and Manufacturing Branch, Flight Standards Division, Federal Aviation Administration, in the region in which the manufacturer is located (or in the case of the Western Region, the Chief, Aircraft Engineering Division), the following technical data:

(1) One copy of the manufacturer's analysis and/or test results showing compliance with the requirements of this TSO.

(2) One copy of the manufacturer's instructions for installation, operation, servicing, maintenance, and repair of the article.

(3) An assembly drawing of the article showing and describing the actual language of all markings, their location, and size of print.

[(d) *Previously approved equipment.* Cargo pallets, nets, and containers approved prior to January 22, 1979, may continue to be manufactured under the provisions of their original approval.]

§ 37.200 Emergency locator transmitters—TSO-C91.

(a) *Applicability.* This Technical Standard Order prescribes the minimum performance standards that airborne emergency locator transmitters must meet in order to be identified with the applicable TSO marking. Emergency locator transmitters which are to be so identified must meet the requirements prescribed in paragraphs (b) and (c) of this section.

(b) *Basic performance standards.* Basic performance standards are hereby established for the following types of emergency locator transmitters:

(1) *Type ELT(P), (personnel type).* Personnel type emergency locator transmitters must meet the standards prescribed in Radio Technical Commission for Aeronautics Document No. DO-145 titled "Minimum Performance Standards—Personnel Type Emergency Locator Transmitters, ELT(P), Operating on 121.5 and 243.0 Megahertz," dated November 5, 1970.

(2) *Type ELT(AF), (automatic fixed type).* Automatic fixed type emergency locator transmitters must meet the standards for Automatic Fixed (AF) Type equipment set forth in Radio Technical Commission for Aeronautics Document No. DO-147 titled "Minimum Performance Standards—Automatic Fixed, Automatic Portable, and Automatic Deployable Type Emergency Locator Transmitters ELT(AF) (AP) (AD), Operating on 121.5 and 243.0 Megahertz," dated November 5, 1970. Notwithstanding the requirements of paragraphs 2.3.1(a) (1) and 2.3.1(c) of DO-147, a tolerance of $\begin{smallmatrix} +5 \\ -0 \end{smallmatrix}$ milliseconds may be applied to the value "11 milliseconds" prescribed therein.

(3) *Type ELT(AP), (automatic portable type).* Automatic portable type emergency locator transmitters must meet the standards for Automatic Portable (AP) Type equipment prescribed in Radio Technical Commission for Aeronautics Document No. DO-147 titled "Minimum Performance Standards—Automatic Fixed, Automatic

Portable, and Automatic Deployable Type Emergency Locator Transmitters, ELT-(AF)(AP)(AD), Operating on 121.5 and 243.0 Megahertz," dated November 5, 1970. Notwithstanding the requirements of paragraph 2.3.1(a)(1) and 2.3.1(c) of DO-147, a tolerance of -0^{+5} milliseconds may be applied to the value "11 milliseconds" prescribed therein.

(4) *Type ELT(AD), (automatic deployable type).* Automatic deployable type emergency locator transmitters must meet the standards for Automatic Deployable (AD) Type equipment prescribed in Radio Technical Commission for Aeronautics Document No. DO-147 titled "Minimum Performance Standards—Automatic Fixed, Automatic Portable, and Automatic Deployable Type Emergency Locator Transmitters, ELT(AF)(AP)(AD), Operating on 121.5 and 243.0 Megahertz," dated November 5, 1970. Notwithstanding the requirements of paragraphs 2.3.1(a)(1) and 2.3.1(c) of DO-147, a tolerance of -0^{+5} milliseconds may be applied to the value "11 milliseconds" prescribed therein.

(5) *Type ELT(S), (survival type).* Survival type emergency locator transmitters must meet the standards prescribed in Radio Technical Commission for Aeronautics Document No. DO-146 titled "Minimum Performance Standards—Survival Type Emergency Locator Transmitters, ELT(S), Operating on 121.5 and 243.0 Megahertz," dated November 5, 1970.

(c) *Additional performance standards.* In addition to meeting the basic performance standards (as applicable) prescribed in paragraph (b) of this section—

(1) Each personnel type emergency locator transmitter must, when installed in accordance with the manufacturer's instructions—

(i) Be automatically activated when subject to a force of $5.0^{+2}-0$ g. and greater for a duration of $11^{+5}-0$ milliseconds and

greater in the direction of the longitudinal axis of the aircraft;

(ii) Not be activated under conditions less severe than those prescribed in subparagraph (c) (1)(i); and

(iii) After activation, remain activated when subsequently subjected to shock forces in any direction of up to 50 g. and having durations up to $11^{+5}-0$ milliseconds.

Alternate means of transmitter activation may be used, including, but not limited to, skin deformation sensors, provided that such alternate means are shown to be substantially equivalent to sensors responsive to the crash forces otherwise prescribed in this subparagraph.

(2) Notwithstanding the requirements of paragraph 3.1 of DO-145, the "low operating temperature" for each personnel type emergency location transmitter shall be -20°C . In addition, notwithstanding the requirements of paragraph 3.5 of DO-145, the maximum low temperature for the temperature variation test shall be -40°C .

(3) The electrical connections to the battery, in each personnel, automatic, and survival type emergency locator transmitter must be corrosion resistant and positive in action.

(4) Each personnel, automatic portable, and survival type emergency locator transmitter must be equipped with a guard for the manual activation switch.

(5) Each automatic fixed, automatic portable, and automatic deployable type emergency locator transmitter that is installed with a remote switch for activation, must be equipped with a guard for the remote switch. In addition, the placard required in subparagraph (f)(1)(iii) of this section must be installed adjacent to the remote switch, as well as on the transmitter.

(d) *Environmental standards.* Unless otherwise stated in RTCA documents referenced in paragraphs (b) and (c) of this section, environmental testing must be done in accordance with RTCA Document No. DO-138 titled "Environmental Conditions and Test Proce-

dures for Airborne Electronic/Electrical Equipment and Instruments," dated June 27, 1968.

(e) *Availability of documents.* RTCA Document Nos. DO-138, DO-145, DO-146, and DO-147 are incorporated herein in accordance with 5 U.S.C. 552(a)(1) and § 37.23 of this Part and are available as indicated in § 37.23. Additionally, these RTCA documents may be examined at any FAA Regional Office of the Chief, Engineering and Manufacturing Branch (or, in the case of the Western Region, the Chief, Aircraft Engineering Division). The above documents may be obtained from the RTCA Secretariat, Suite 655, 1717 H Street, N.W., Washington, D. C. 20006.

(f) *Marking.* (1) In addition to the markings prescribed in § 37.7(d) of this Part, the equipment must be permanently and legibly marked with—

(i) Its type designation as prescribed in paragraph (b) of this section;

(ii) The date on, or before, which the battery must be replaced or recharged, as applicable, to comply with the useful life limitation prescribed in paragraph (g) (2) of this section; and

(iii) The following placard: "For aviation emergency use only. Unlicensed operation unlawful. Operation in violation of FCC rules subject to fine or license revocation."

(2) In addition to the markings prescribed in § 37.7(d) of this Part and subparagraph (1) of this paragraph, each personnel type emergency locator transmitter, and each automatic portable type emergency locator transmitter must be permanently and legibly marked with the following placard: "When using in temperatures below freezing, keep transmitter inside your jacket with antenna outside for longest operating life."

(3) Each separate component of the equipment (antenna, transmitter, or other) must be permanently and legibly marked with at least the manufacturer's name and the TSO number.

(g) *Data requirements.* In accordance with § 37.5 of this Part, the manufacturer must furnish to the Chief, Engineering and Manufacturing Branch, Flight Standards Division (or, in the case of the Western Region, to the Chief, Aircraft Engineering Division), Federal Aviation Administration in the region in which the manufacturer is located, one copy of the following technical data, except that additional copies must be furnished upon request by the FAA:

(1) Manufacturer's operating instructions and equipment limitations, containing a statement identifying the type designation of the equipment as prescribed in paragraph (b) of this section.

(2) Installation instructions, including applicable schematic diagrams, wiring diagrams, procedures, and specifications. The specifications must set forth all limitations, restrictions, or other conditions, pertinent to the installation. The limitations must include, for batteries other than those that are essentially unaffected during probable storage intervals, a limitation on the use of the battery beyond 50 percent of its useful life (or in the case of a rechargeable battery, beyond 50 percent of its useful life of charge) as established by the transmitter manufacturer. For the purpose of this subparagraph, the useful life of the battery (established by the transmitter manufacturer) is the length of time, after its date of manufacture, that the battery may be stored on the shelf under normal environmental conditions without losing its ability to meet the power supply requirements prescribed in the applicable performance standards of paragraph (b) of this section.

(3) List of components (by part number) that make up the equipment system complying with the applicable standards prescribed in this section.

(4) Manufacturer's test report.

(5) Equipment data sheets specifying, within the prescribed range of environmental conditions, the actual performance of equipment of that type with respect to

each performance factor prescribed in the applicable standard.

(h) *Data furnished with each manufactured unit.* A copy of the operating instructions and equipment limitations prescribed in paragraph (g)(1) of this section, the installation instructions prescribed in paragraph (g)(2) of this section, and the equipment data sheets prescribed in paragraph (g)(5) of this section, must be furnished with each emergency locator transmitter manufactured under this TSO.

§ 37.201 Ground proximity warning-glide slope deviation alerting equipment; TSO-C92b.

[(a) *Applicability—Minimum performance standards.* This Technical Standard Order prescribes the minimum performance standards that ground proximity warning-glide slope deviation alerting equipment must meet in order to be identified with the applicable TSO marking. Equipment to be so identified must meet the minimum performance standards prescribed in Radio Technical Commission for Aeronautics (RTCA) Document No. DO-161A, titled "Minimum Performance Standards, Airborne Ground Proximity Warning System" (DO-161A), revised May 27, 1976, with the exception specified in paragraph (c)(4) of this section, and the additional standards contained in paragraphs (c)(1) through (c)(3) of this section.]

(b) *Environmental standards.* RTCA Document No. DO-138, dated June 27, 1968, including Change Number 2, dated October 29, 1969, or RTCA Document No. DO-160, dated February 28, 1975, both titled "Environmental Conditions and Test Procedures for Airborne Electronic/Electrical Equipment and Instruments", must be used to determine the environmental conditions over which the equipment has been designed to operate.

[(c) *Additional standards and exception.*

[(1) *Fire protection.* Except for small parts (such as knobs, fasteners, seals, grommets, and small electrical parts) that the Administrator finds would not contribute significantly to the propagation of a fire, all

materials used must be self-extinguishing when tested in accordance with the requirements of § 25.853 and § 25.1359(d), as applicable, and Appendix F to Part 25 of this chapter, effective May 1, 1972, except that the materials may be of a size and be mounted for the test in accordance with paragraph (b) of Appendix F or may be of a size and be mounted as used in the aircraft.

[(2) *Aural and visual warnings.* The required aural and visual warnings must initiate simultaneously.

[(3) *Deactivation control.* If the equipment incorporates a deactivation control other than a circuit breaker, the control must be a switch with a protective cover. The cover must be safety wired so that the wire must be broken in order to gain access to the switch.

[(4) *Mode 4 flap warning inhibition.* A separate guarded control may be provided to inhibit Mode 4 warnings based on flaps being in other than the landing configuration.]

(d) *Markings.* In addition to the markings specified in § 37.7(d), the equipment must be marked as follows:

(1) The environmental categories over which it has been designed to operate as set forth in Appendix B of RTCA Document No. DO-138 or Appendix A of Document No. DO-160 must be permanently and legibly marked on the equipment. Where an environmental test procedure is not applicable and the test is not conducted, an "X" must be placed in the space assigned for that category.

(2) Each separate component of equipment (computer, transducer, etc.) must be permanently and legibly marked with, at least, the name of the manufacturer, the TSO number, and the environmental categories over which it has been tested.

(e) *Data requirements.* In accordance with § 37.5, the manufacturer must furnish to the Chief, Engineering and Manufacturing Branch, Flight Standards Division (or in the